

Data



## **ARCADIS Orbic** **ARCADIS Orbic 3D**

Clinical Workflow with Enhanced Surgical Precision

# ARCADIS Orbic

## ARCADIS Orbic 3D

### Clinical Workflow with Enhanced Surgical Precision



Siemens starts a new era in the OR with the *syngo*-based ARCADIS Orbic and Orbic 3D. *syngo* provides you with clinical patient information online, so you can optimize efficiency in your OR, allowing entirely new possibilities.

ARCADIS Orbic and Orbic 3D expand the boundaries of your OR by integrating modalities such as CT and MR, as well as the entire clinical network into your OR work process.

#### **ARCADIS Orbic and Orbic 3D – clear advantages of a powerful system**

##### ***syngo***

- Uniform, intuitive user interface for system operation, image postprocessing and networking
- Workflow-oriented task card structure
- Comprehensive connectivity with other modalities and clinical networks

##### **Optimized clinical workflow**

- Maximum flexibility in patient registration
- Easy, intuitive selection of application-specific user programs with VPA (Virtual Patient Anatomy)
- Real multimodality viewing before, during, and after the procedure
- Virtually unlimited documentation and archiving possibilities
- Fluoro loop\* / LSH\* (Last Scene Hold)

##### **Brilliant 1K<sup>2</sup> image quality**

- Optimally matched, continuous 1K<sup>2</sup> imaging chain, from image acquisition to viewing and archiving
- Large power reserves through 2.3 kW / 23 mA generator power and Power Mode
- High-luminance TFT displays

##### **Distinctive design**

- Truly isocentric design yielding time and dose savings, no readjustments needed
- Maximum projection flexibility with 190° orbital rotation
- Excellent C-arm handling through electromagnetic brakes and ergonomic handrails
- Intelligent color coding of brakes for fast and precise positioning and operation

##### **Comprehensive connectivity and specialized interfaces**

- Supports virtually all DICOM 3 functionalities
- Integrated, digital 1K<sup>2</sup> navigation interface NaviLink 2D\* with automatic image transfer
- *syngo* fastView for convenient selection and viewing of clinical images on the PC

##### **Intra-operative 3D imaging**

- Integrated 3D imaging function for intra-operative application for increased safety and precision
- Acquisition of the 3D data set in only 30 or 60 seconds (50/100 images)
- The correct position of the reconstructed 3D data set can be monitored during the scan
- 2D and 3D image data can be viewed simultaneously at the monitor trolley

##### **Direct navigation interface NaviLink 3D\***

- Shorter preparation phase through automatic registration and elimination of preoperative imaging for navigation; e.g., CT as basis for the navigation
- Automatic 3D image data transfer to the navigation system following the 3D scan
- Universal interface for navigation systems from various suppliers

#### **ARCADIS Orbic and Orbic 3D – distinctive advantages for clinical efficiency in the OR**

\* Option



# ARCADIS Orbic

## ARCADIS Orbic 3D

### Technical data

syngo

### Patient data administration

### Image acquisition (2D, 3D)

#### C-arm

Isocentric C-arm movement with integrated cables and electromagnetic brakes

Orbital movement	190° (± 95°)
Angulation	± 190°
Horizontal movement	20 cm (7.9")
Immersion depth	73 cm (28.7")
Swivel range	± 10°
Vertical travel	40 cm (15.7"), motorized
Source-I.I. distance	98 cm (38.5")
Free space	78 cm (30.7")

#### X-ray generator / tube

Max. pulsed output	2.3 kW
Converter control frequency	15 kHz to 30 kHz
kV range	40 kV to 110 kV
Fluoroscopy	0.2 mA to 15.2 mA (max. 1000 W)
Digital Radiography	0.2 mA to 23 mA (max. 1000 W)
Pulsed Fluoroscopy	up to 23 mA
Pulse width	min. 7 ms
Pulse rate	up to 8 f/s, up to 15 f/s*
Power Mode	enables temporary max. output in continuous fluoroscopy and pulsed fluoroscopy

#### Single tank with stationary anode

Focal spot nominal value (IEC 336)	0.6
Nominal voltage (IEC 613)	110 kV
Optical anode angle (IEC 788)	9°
Inherent filtration	≥ 3 mm Al equivalent

#### Collimator system

Iris diaphragm	for concentric, radiation-free collimation
Semi-transparent slot diaphragm	for symmetric, radiation-free collimation, with unlimited rotation

\* Option

## Image display/processing

## 3D visualization

## Data transfer and documentation

## Options

### X-ray TV system

High-resolution X-ray TV system in maintenance-free CCD technology with 1024 x 1024 (1K<sup>2</sup>) full-size CCD sensor

Constant image brightness due to automatic gain control

High contrast and high spatial resolution

TV matrix	1K <sup>2</sup>
Digital image rotation	± 360°

### X-ray image intensifier

Metal-enamel technology with Mu-metal shielding

Precision electron optics with minimal image distortion and consistent high resolution across the entire image field

Cesium-iodide input screen for minimum quantum noise and excellent resolution

Anti-glare output screen with scattered light trap for high contrast dynamics and prevention of scattered light effects

High-transparency input window

Nominal diameter	23 cm (9")
Zoom format	15 cm (6")
Grid	PB 17/70, f <sub>0</sub> 100

### Displays

#### 18" TFT monochrome display

High-contrast display with high luminance

Screen size	18" (46 cm)
Image matrix	1280 x 1024
Maximum brightness, typical	600 cd/m <sup>2</sup>
Horizontal / vertical viewing angle	170° / 170°

#### 19" TFT color display

Screen size	19" (48 cm)
Image matrix	1280 x 1024
Maximum brightness, typical	280 cd/m <sup>2</sup>
Horizontal / vertical viewing angle	170° / 170°

# ARCADIS Orbic

## ARCADIS Orbic 3D

### Technical data

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### Image acquisition (2D, 3D)

#### syngo

Fully digital, *syngo*-based online imaging system with continuous 1K<sup>2</sup> imaging chain (image acquisition, image processing, storage, archiving and documentation). Integrated, uninterruptible power supply (UPS) ensures that image and patient data are secure in the event of a power outage

<i>syngo</i> -based applications	<p>Intuitive menu guidance with function-oriented task cards</p> <p>Dedicated, application-related user programs VPA (Virtual Patient Anatomy) with anatomic assignment and selection</p> <p>Direct dose level selection for individual adaptation of the radiation dose to the patient's anatomy (ensures lowest possible dose at high image quality)</p> <p>Dynamic and static reference image display</p> <p>Simultaneous display of subtracted and native images (with subtraction option)</p>
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#### Patient data administration

Patient data administration	<p>Emergency registration</p> <p>Pre-registration</p> <p>Manual patient registration</p> <p>Registration via database query (Patient Browser)</p> <p>Registration via DICOM Worklist*</p>
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#### Image acquisition

##### Operating modes

Selection of 8 application-specific fluoroscopy and radiography curves for the individual operating modes

Digital Fluoroscopy (FL)	<p>Continuous fluoroscopy with 30 f/s (1K<sup>2</sup>/12-bit matrix)</p> <p>Digital filtration</p> <p>Manual/automatic image storage</p> <p>Sliding weighted averaging for low-noise image display with minimum dose</p>
Digital Radiography (DR)	<p>Digital filtration (1K<sup>2</sup>/12-bit matrix)</p> <p>Sliding weighted averaging for low-noise image display with minimum dose</p>
Digital Pulsed Fluoroscopy (PFC)	Variable frame rate 0.5 to 8 f/s, (0.5 to 15 f/s*)
Digital Subtraction Angio-graphy* / Roadmap*	<p>Variable frame rate 0.5 to 8 f/s, (0.5 to 15 f/s*)</p> <p>Simultaneous dual-channel output for image acquisition and postprocessing, simultaneous storage of fill image</p>

##### Dose optimization

Integrated dose measuring chamber\* with automatic entry of the accumulated dose in a radiation report

Dose level selection

System-integrated laser aimer on the I.I.\*

System-integrated laser targeting device on tube side\*

Horizontal laser light localizer for determining the isocenter\*

\* Option

## Image display/processing

## 3D visualization

## Data transfer and documentation

## Options

### 3D image acquisition\*

#### Motor drive

Motor-driven orbital movement through 190° for online reconstruction of isotropic 3D data sets

Rotation time	30 seconds with 50 images/scan
	60 seconds with 100 images/scan

Note:

For 3D applications, radiolucent, metal-free OR table accessories are required

### Image display/processing

Image display	Split screen (1, 4, 9, 16 on 1) Digital zoom, fixed zoom, roaming Image intensifier zoom (optical zoom) Digital image rotation Movie function for playback of scenes Digital shutters Left/right and top/bottom image reversal Positive/negative image inversion Fluoro loop* / LSH*
Image processing	Application-specific lookup tables (LUTs) for optimum contrast and brightness Spatial frequency filtration for edge-enhanced image display Pixelshift, Remask, Landmark (with subtraction option) Edge enhancement Noise reduction Motion detection with active noise reduction
Text / graphic functions	Marking, image annotation and comment Measuring* of angles and distances

### 3D visualization\*

The following visualization modes are possible:

Multiplanar Reconstruction (MPR)	With MPR, two-dimensional images of arbitrary orientation (axial, sagittal, coronal, oblique, double-oblique, curvilinear) are reconstructed from the isotropic 3D volume
Surface Shaded Display (SSD)	This method is especially suitable for displaying bone surfaces. The reconstruction threshold value can be determined arbitrarily, resulting in surface reconstructions with special shading effects. The viewing angle and location can be freely selected
Interactive real-time 3D image visualization (MPR, SSD) can be performed with a mouse at the monitor trolley	
3D image fusion	3D image fusion for the spatial orientation and visualization of a patient's image data that was generated by different modalities at different times. Supports optimal diagnosis (fusion of morphological and functional information), therapy planning and follow-up

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### Data transfer and documentation

#### DICOM Basic\*

##### DICOM Storage Send/Receive

DICOM interface for image data communication in a clinical network (PACS) based on the DICOM 3 standard

Sending, receiving and storing of images

##### DICOM Storage Commitment

Archiving confirmation from the image archive

##### DICOM Print

For printing within the network, on a DICOM-compatible camera or DICOM-compatible printer

##### syngo Filming Task Card

Enables dedicated image selection prior to printing; preview and grouping of images on the virtual film sheet

#### DICOM Advanced\*

DICOM Advanced contains all the functions of DICOM Basic, plus:

##### DICOM Query/Retrieve

Retrieval of studies from a digital archive, a workstation, or other imaging systems; e.g., MR, CT

Multimodality viewing

##### DICOM Worklist Management

For importing patient/examination data from an independent HIS/RIS system, including HIS/RIS queries via special search criteria

##### MPPS (Modality Performed Procedure Step)

For importing / exporting examination data from / to an independent HIS/RIS system

All DICOM Advanced functions are also available as individual items in combination with DICOM Basic

\* Option



## Image display/processing

## 3D visualization

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## Options

### Data transfer and documentation

Image memory	40,000 2D images on hard disk in 1K <sup>2</sup> matrix 150 3D scans with 50 images /scan 85 3D scans with 100 images /scan
Dual network interface*	Network hub for simultaneous connection of the ARCADIS C-arm system with a navigation system (stand alone) and an IT network
NaviLink 2D*	Integrated 2D navigation interface for digital, lossless transfer of 2D image information to the navigation system
NaviLink 3D*	Integrated 2D and 3D navigation interface for digital, lossless transfer of 2D and 3D image information to the navigation system
DICOM Offline Media (CD r/w)	For documenting images on CD in DICOM and BMP format DICOM Viewer for viewing patient images on the PC (single images only) The DICOM viewer can be written to CD
External monitor connections*	Monitor Out Live (L): For connecting up to 2 external live monitors Monitor Out Live and Reference (L + R): For connecting up to 2 external live and reference monitors each SXGA (1280 x 1024); 75 Hz; 5x BNC (galvanic separation)
Video splitter*	Live monitor (L): Video splitter output for connecting an external live monitor Reference monitor (R): Video splitter output for connecting an external reference monitor VGA interface (splitter), 1 x 15 pin VGA (no galvanic separation)
Printer*	Digital printer for printing on paper Digital high-end printer for printing on film or paper
HIPAA*	Security and Privacy (Health Insurance Portability and Accountability Act)

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### Image acquisition (2D, 3D)

### Options

Imaging acquisition	Digital Subtraction Angiography / Roadmap Pulsed fluoroscopy, pulse rate up to 15 p/s System-integrated laser aimer on the I.I. System-integrated laser targeting device on tube side Horizontal laser light localizer for determining the isocenter Integrated dose measuring chamber
Image display/processing	Fluoro loop / LSH 3D image fusion Measuring of angles and distances
Data transfer and documentation	DICOM Basic DICOM Advanced Dual network interface NaviLink 2D NaviLink 3D External monitor connections Video splitter Printer HIPAA
Accessories	Sterile covers for C-arm, X-ray tube and image intensifier
NaviVision	Fully integrated optical navigation platform from BrainLAB (BrainLAB AG, D-Heimstetten) for 2D navigation with ARCADIS Varic and ARCADIS Orbic as well as 3D navigation with ARCADIS Orbic 3D

NaviVision is not commercially available in the United States (U.S.A.)

### Operating data

Power requirements	100 V, 110 V, 120 V, 127 V, 200 V, 230 V, 240 V, ( $\pm 10\%$ ), 50/60 Hz ( $\pm 1$ Hz)
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### Environmental conditions (operation)

Temperature range	+ 15°C to + 35°C
Relative humidity	15% to 75%, non-condensing
Barometric pressure	700 hPa to 1060 hPa

### Weight

C-arm chassis	348 kg (765 lbs)
Monitor trolley with integrated UPS	190 kg (418 lbs)

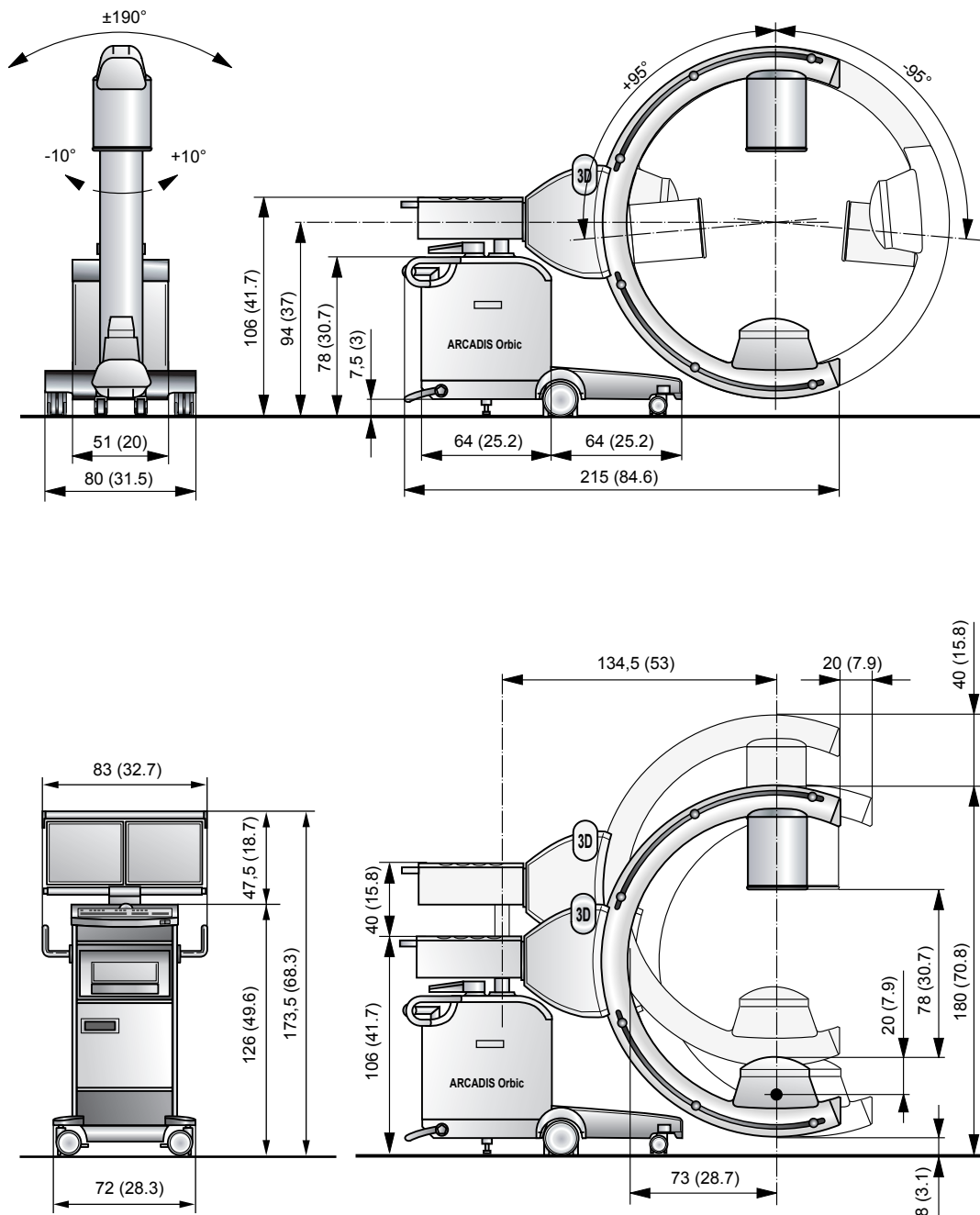
Image display/processing

3D visualization

Data transfer and documentation

Options

Dimensions in cm (inches)





The information in this document contains general descriptions of the technical options available and may not always apply in individual cases.

The required features should therefore be specified in each individual case at completion of contract.

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